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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,839	10/16/2003	Gil Delgado	KLA1P083	9429

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EXAMINER


BAKER, DAVID S

ART UNIT	PAPER NUMBER
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2884

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/688,839	Applicant(s) DELGADO ET AL. 	
	Examiner David S. Baker	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/06/2006 and 02/13/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-6, 9-38 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 4-6, 9-15, 21, 23-30 and 33-38 is/are allowed.
- 6) ☒ Claim(s) 16-18, 22 and 31 is/are rejected.
- 7) ☒ Claim(s) 19, 20 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/13/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/26/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The corrected replacement drawings of figures 5a-5c were received on 02/13/2006.

These drawings are acceptable and have been entered into the record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 16-18, 22, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by McAninch (US Patent Application Publication #2002/0149774 A1).

Regarding claim 16, McAninch discloses a gas flow system for an optical inspection system, the gas flow system comprising: a means (optics housing 22, figures 2a and 2b, paragraph 0022-0024) for flowing a gas stream (purge gas 34, figures 2a and 2b, paragraphs 0022-0024) in front of an exposed optical surface (lenses 36, figures 2a and 2b, paragraphs 0022-0024) of the optical inspection system (illuminator 64, beam transport tubes 67 and 68, optics housing 22, rotating compensator in housing 73, spectrometer/detector assembly 70, processor 72, figures 2a, 2b, 3, paragraphs 0022-0025) so as to prevent contaminants from adversely effecting the exposed optical surface of the optical inspection system (paragraphs 0007-0008).

Regarding claim 17, McAninch discloses that the optical surface is associated with a lens (lenses 36, figures 2a and 2b) capable of directing (paragraph 0024) UV light (incident illumination 26, figure 2a).

Regarding claim 18, McAninch discloses that flowing the gas stream (purge gas 34, figures 2a and 2b, column 0022-0024) in front of the exposed optical surface (lenses 36, figures 2a and 2b, paragraphs 0022-0024) effectively removes the contaminants in a region proximate the exposed optical surface (0007-0008).

Regarding claim 22, McAninch discloses a method of inspecting a semiconductor substrate, comprising: providing a front collection lens (lens 36, figures 2a and 2b) along an optical path (paragraph 0024), the front collection lens being the first optical component in a series of optical components (lens 36, unnumbered mirror in housing 66, spectrometer/detector assembly 70, figures 2a and 2b and 4) along the optical path (paragraphs 0024-0028); exposing the semiconductor substrate (wafer 24, figures 2a and 2b) to UV radiation (incident illumination 26, figure 2a, paragraph 0024); generating a gas stream (purge gas 34, figures 2a and 2b) that blocks contaminants from reaching the surface of the front collection lens and that transports contaminants away from the surface of the front collection lens during at least said exposing (paragraphs 0007-0008 and 0022-0024); collecting light emanating from the sample with the front collection lens (figure 2a); and analyzing the collected light (reflected radiation 28, figure 6) to determine if defects are present in the semiconductor substrate (paragraphs 0028-0029).

Regarding claim 31, McAninch discloses that the gas flow system of the optical inspection system includes an optical subsystem having a plurality of optical components

Art Unit: 2884

(lenses 36, mirror 80, figures 2a and 2b) aligned along an optical axis, the optical components cooperating to collect light (incident illumination 26, figure 2a) emanating from a sample (wafer 24, figures 2a and 2b) and to direct the collected light to a detector (spectrometer/detector assembly 70) for the purpose of defect analysis (paragraphs 0022-0028), and wherein the exposed optical surface (exterior surfaces of lenses 36, figures 2a and 2b) is from at least one of the optical components (lenses 36, figures 2a and 2b) of the optical inspection system.

Response to Amendment

4. The amendment filed on 02/06/2006 and 02/13/2006 is accepted and entered.

Allowable Subject Matter

5. Claims 1, 4-6, 9-15, 21, 23-30, and 33-38 are allowed.
6. Claims 19, 20, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 4-6, 9-15, and 33-38, none of the prior art of record discloses or makes obvious an inspection system for detecting defects on a sample; namely, an apparatus comprising of a gas purge system configured to produce a gas stream that blocks contaminants from reaching the optical surface of the optical component and that transports the contaminants away from the optical surface of the optical component, the gas purge system including a substantially planar cover having an opening disposed in front of and along an optical axis of the optical component, the opening allowing light to

pass for the purpose of inspecting the optical component, and the gas stream to pass for the purpose of preventing contaminants from reaching the optical surface of the optical component. References such as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach the use of a planar cover to control the direction of the gas flow across the optical components or to direct the gas flow. References such as Wakamiya disclose the use of a cover to direct a gas flow over an optical component of an optical system, but the combination of the inventions would not be obvious as the inventions belong to nonanalogous art.

Regarding claim 19, the prior art of record does not disclose or make obvious a gas flow system that routes the gas stream across the optical surface substantially parallel to the optical axis of the exposed optical surface. References such as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach routing the gas stream across the optical surface substantially parallel to the optical axis of the exposed optical surface. References such as Wakamiya disclose the use of a cover to route the gas stream across the optical surface substantially parallel to the optical axis of the exposed optical surface, but the combination of the inventions would not be obvious as the inventions belong to nonanalogous art.

Regarding claim 20, the prior art of record does not disclose or make obvious a gas flow system routes the gas stream away from the exposed optical surface substantially parallel to the optical axis of the exposed optical surface. References such

as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach routing the gas stream away from the exposed optical surface substantially parallel to the optical axis of the exposed optical surface. References such as Wakamiya disclose routing the gas stream away from the exposed optical surface substantially parallel to the optical axis of the exposed optical surface, but the combination of the inventions would not be obvious as the inventions belong to nonanalogous art.

Regarding claims 21 and 24-30, none of the prior art of record discloses or makes obvious a system for inspecting substrates; namely, an apparatus comprising of a cover disposed between a front lens and the substrate to be inspected, the cover having an opening that allows ultraviolet light to pass between the front lens and the substrate to be inspected, the cover defining at least in part a channel within in which a gas stream is created for the purpose of preventing particles from depositing on the front lens.

References such as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach the use of a cover disposed between a front lens and the substrate to be inspected.

References such as Wakamiya disclose the use of a cover disposed between a front lens and the substrate to be inspected, the cover having an opening that allows radiation to pass between the front lens and the substrate, but the combination of the inventions would not be obvious as the inventions belong to nonanalogous art.

Regarding claim 23, none of the prior art of record discloses or makes obvious an optical analysis for inspecting a semiconductor surface, namely that the transparent cover

Art Unit: 2884

disposed to proximately to the front collection lens between the front collection lens and the semiconductor substrate to protect the front collection lens from contamination.

References such as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach the use of a transparent cover disposed to proximately to the front collection lens between the front collection lens and the semiconductor substrate. References such as Wakamiya disclose the use of a cover disposed to proximately to the front collection lens between the front collection lens and the semiconductor substrate but does not teach that the cover is transparent. Additionally, the combination of the inventions would not be obvious as the inventions belong to nonanalogous art.

Regarding claim 32, the prior art of record does not disclose or make obvious a gas flow system that flows the gas stream at least in part parallel to the exposed surface. References such as McAninch teach the use of a gas purge system to remove contaminants from the optical components of an inspection system but do not teach flowing the gas stream at least in part parallel to the exposed surface. References such as Wakamiya disclose flowing the gas stream at least in part parallel to the exposed surface, but the combination of the inventions would not be obvious as the inventions belong to nonanalogous art

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2884

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. "Status of 157nm Microstepper with High NA Lens," International Sematech, 157nm Technical Data Review, May 7-9, 2002 – Wakamiya discloses a gas purge system for use in a semiconductor lithography system that routes gas across an exposed optical surface.

Response to Arguments

9. Applicant's arguments with respect to claims 16-18 and 22 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments, see pages 1-3, filed 02/06/2006, with respect to claims 1, 4-6, 9-15, 19-21, and 23 have been fully considered and are persuasive. The rejection of claims 1, 4-6, 9-15, 19-21, and 23 has been withdrawn.

11. Applicant's arguments, see pages 1 and 3, filed 02/06/2006, with respect to the rejection(s) of claim(s) 16-18, 22, under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of McAninch (US Patent Application Publication #2002/0149774 A1) under 35 U.S.C. 102(e).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is 571-272-6003. The examiner can normally be reached on MTWRF 10:30-7:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David S Baker
Examiner
Art Unit 2884

Art Unit: 2884

DSB



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